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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/043,318	01/14/2002	Nabuaki Abe	P21596	6294
7055	7590	02/07/2005	EXAMINER	
GREENBLUM & BERNSTEIN, P.L.C.			NGUYEN, HAU H	
1950 ROLAND CLARKE PLACE			ART UNIT	
RESTON, VA 20191			PAPER NUMBER	
			2676	

DATE MAILED: 02/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/043,318	ABE, NABUAKI	
	Examiner	Art Unit	
	Hau H Nguyen	2676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2-30 is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 2-30 are objected to because of the following informalities:

In claim 2, there are no spaces between words and phrases in line 19, page 40, lines 8-9, page 42.

The same problem is found in claims 3-4, 9-14, 17-18, 22-23, 25-29.

2. Claims 2-30 would be allowable if rewritten or amended to overcome the objections set forth in this Office action.

Reasons for Allowable Subject Matter

3. The following is an examiner's statement of reasons for allowable subject matter:

The prior art taken singly or in combination does not teach or suggest, an image interpolating device among other things, comprising:

a first interpolation/modification processor that extracts a first similar pixel which has the closest luminance value to that of said first objective pixel, from pixels adjacent to said first objective pixel, obtains a third B-signal of said first objective pixel by a first interpolation process, and modifies said second G-signal and said first R-signal of said first objective pixel, based on first information of said first similar pixel;

a second interpolation/modification processor that extracts a second similar pixel which has value to that of said fourth objective pixel, from pixels adjacent the closest luminance to said fourth objective pixel, obtains a third R-signal of said fourth objective pixel by a second interpolation process, and modifies said second G-signal and said first B-signal of said fourth objective pixel, based on second information of said second similar pixel.

The closest prior art, Chen (U.S. Patent No. 6,570,616) teaches a color filter, an image device, a pattern generating, a first G-interpolation processor, a second R/B interpolation processor. However, reference Chen does not teach the above features.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Chen (U.S. Patent No. 6,570,616).

Referring to claim 1, as shown in Fig. 1, Chen teaches an imaging device comprises an imaging lens 1, a filter 2, a two-dimensional image sensor 3, an A/D converter 4, image memories 5, 6 and 7, an image processor 8, a ROM 9, a RAM 10, an interface circuit 11, an image display device 12, an external memory 13 and an imaging controller 16. Light from the object passes through the imaging lens 1 and the filter 2, then is image-formed on the imaging surface of the two-dimensional image sensor 3 (col. 7, lines 29-37). Chen teaches the image data stored in the image memories 5, 6 and 7 illustrated in FIGS. 4A-4C is missing pixels for each of the red, green and blue color components. These missing pixels are replaced in the two-dimensional data by forming interpolated pixels by interpolation processing as shown in FIG. 10. The interpolated pixels are also stored in the image memories 5, 6 and 7. Pixel data arrangement

Art Unit: 2676

after interpolation of missing pixels is shown in FIGS. 5A-5C (col., lines). As shown in Fig. 10, Chen teaches a first interpolation process (G interpolation, step S4) is performed to obtain a second color on the objective pixel (pixel 33 illustrated in Fig. 6), the generated second color signal is then used in a second interpolation process (R, B interpolation, Fig. 9, and steps S8, S10 of Fig. 10) until the missing color components are generated. Thus, the original color (first color signals) are modified during interpolation.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hau H. Nguyen whose telephone number is: 703-305-4104. The examiner can normally be reached on MON-FRI from 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on 703-308-6829.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D. C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

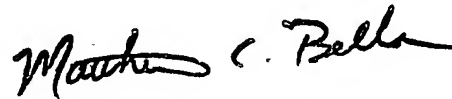
Hand-delivered response should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA, Sixth floor (Receptionist).

Art Unit: 2676

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

H. Nguyen

02/02/2005

A handwritten signature in black ink, appearing to read "Matthew C. Bella".

MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600